REMARKS

Claims 1-13 are pending and under consideration. Claim 13 is added herein. Support for the amendment to claim 13 may be found in the claims as filed originally. Further reconsideration is requested based on the foregoing amendment and the following remarks.

Interview Summary

The Applicant submits the following summary of the telephone interview that took place February 27, 2006 between the undersigned representative of the Applicant and the Examiner.

Telephone Conference:

The Applicant thanks the Examiner for the many courtesies extended to the undersigned representative of the Applicant during the telephone interview that took place February 27, 2006.

Among the issues discussed during that interview were the patentability of the claims over the cited references. The Examiner agreed graciously to reconsider the rejections and update the search, upon receipt of this further response from the Applicant.

Response to Arguments:

The Applicants appreciate the consideration given to their arguments. The Applicants, however, are disappointed that their arguments were not found to be persuasive. The final Office Action responded to the argument that Song shows no "issuing a charge request message to a user" and thus cannot make up for this deficiency of Han in section 7 at page 6 by asserting that "generating signals implies indicator/message to the user/operator." This is submitted to be incorrect. Many, many signals go unobserved by a user or operator, and are not meant for the user to know about. Song, in fact, pertains to a robot cleaner operated by remote control, in which there is no user/operator to whom to *send* a charge request message. Rather, as described at paragraph [0002] of Song:

> The present invention relates generally to a robot cleaner, a system thereof, and a method for controlling the same, and more particularly to a robot cleaner, a system thereof, and a method for controlling the same, capable of directing the robot cleaner to a targeting location easily by obtaining geographical information of the targeting work area.

Since the robot cleaner in Song is operated by remote control, there is no reason for "issuing a charge request message to a user."

Song, furthermore, controls the driving portion 15 to travel along the calculated return trajectory to the external charging device 30 without intervention from a user, upon receipt of the

signal for charge request. The assertion that generation of a signal necessarily implies that the operator will be notified would, on the other hand, negate the purpose of this type of automatic, or feedback, control. In particular, as described at paragraph [0058] of Song:

> When the assigned operation is completed, or when the signal for charge request is inputted from the battery charge level detecting portion 20 during the operation, the controlling portion 18 of the robot cleaner 10 calculates a return trajectory to the external charging device 30 by using the trajectory information memorized therein at the time of separating from the external charging device 30, and controls the driving portion 15 to travel along the calculated return trajectory while preventing deviation from the trajectory through the use of inputted signals from the proximity switches 12c.

Since Song sends the robot cleaner back on its own to be recharged, there is no reason for "issuing a charge request message to a user."

The final Office Action responded to the argument that since Han describes the operation of the robot cleaner 1 stopping when it touches power source supplier 110 at column 11, lines 44-49, no current will be drawn by the drive mechanism from the power supply adaptor while the battery is being charged in section 7 at pages 6 and 7 by asserting that:

> (Han's teaches in col. 4, lines 53-56 "<u>Charging</u> means 90 <u>charges</u> the battery 91 during travel of the robot cleaner 1 level of change of the battery 91 is decreased to below a predetermined level."), note the charging has been done during while traveling.

This is submitted to be incorrect. For one thing, the passage on which the final Office Action relies appears in col. 4, lines 53-56 of US Patent No. 5,534,762 to Kim, which was not used in the rejection under 35 U.S.C. § 102(b), rather than Han, which was. Even though the reference number of Kim is listed along with the name "Han" in the rejection in section 4 at page 2 of the final Office Action, the final Office Action apparently intended to rely on Han in the rejection since, for example, Kim has no Fig. 7, which is referenced several times in section 4 at page 2.

Furthermore, even if charging means 90 charges the battery 91 during travel of the robot cleaner 1, there is still no reason to believe that current will be drawn by the drive mechanism from the power supply adaptor while the battery is being charged. Current, for example, could be drawn from the battery while it is being charged as well.

The final Office Action responded to the argument that Han describes nothing at all about charging the battery, let alone supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating in section 7 at page 7 by pointing to the passage in Kim discussed above, which was not used in the rejection.

Han, furthermore, describes nothing at all about charging the battery, let alone supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating. Further reconsideration is thus requested.

Claim Rejections - 35 U.S.C. § 102:

Claims 2, 3, 6, 7, 10, and 11 were rejected under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,646,494 to Han (hereinafter "Han"). The final Office Action identifies the serial number of Han to be 5,534,762. As discussed above, however, this serial number belongs to a patent issued to Kim, not Han. In any case, the rejection is traversed. Reconsideration is earnestly solicited.

Claims 2 and 10 recite:

Supplying current to the drive mechanism from the power supply adaptor while charging the battery with current supplied from the power supply adaptor.

Han neither teaches, discloses, nor suggests "supplying current to the drive mechanism from the power supply adaptor while charging the battery with current supplied from the power supply adaptor," as recited in claims 2 and 10. As Han, rather, describes at column 11, lines 44-49,

Meanwhile, as a result of the determination at step S21, if the robot cleaner 1 has touched the power source supplier 110 (in case of yes), the flow advances to step S22, thereby to stop operation of the robot cleaner 1 according to the control of the control means 20 and to cause the robot cleaner 1 to touch the power source supplier 110.

The fact that operation of the robot cleaner 1 *stops* when it touches power source supplier 110 implies that no current is *drawn* by the drive mechanism from the power supply adaptor while the battery is being charged. If no current is *drawn* by the drive mechanism, no current need be *supplied*. This is to be contrasted with claims 2 and 10, which recite, "supplying current to the drive mechanism from the power supply adaptor while charging the battery with current supplied from the power supply adaptor." Claims 2 and 10 are submitted to be allowable. Withdrawal of the rejection of claims 2 and 10 is earnestly solicited.

Claims 3 and 11:

Claims 3 and 11 recite:

Supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating.

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Han neither teaches, discloses, nor suggests "supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating," as recited in claims 3 and 11. Neither Fig. 7, the Abstract, nor column 6, lines 39-42 of Han describe supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating, contrary to the assertion in the final Office Action. Fig. 7, rather, is described at column 6, lines 39-42 as showing:

> As evidenced in FIG. 7, control means 20 denote a microcomputer for controlling overall operations of the robot cleaner 1 by being supplied with a DC voltage from the battery.

Nothing at all is mentioned here about charging the battery, let alone, "supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating," as recited in claims 3 and 11. Claims 3 and 11 are submitted to be allowable. Withdrawal of the rejection of claims 3 and 11 is earnestly solicited.

Claim 6:

> Claim 6 recites:

> Supplying current to the drive mechanism from a power supply adaptor while charging the battery with current supplied from the power supply adaptor.

Han neither teaches, discloses, nor suggests "supplying current to the drive mechanism from a power supply adaptor while charging the battery with current supplied from the power supply adaptor," as discussed above with respect to the rejection of claims 2 and 10. Claim 6 is thus submitted to be allowable as well, for at least those reasons discussed above with respect to the rejection of claims 2 and 10. Withdrawal of the rejection of claim 6 is earnestly solicited.

Claim 7:

> Claim 7 recites:

> Supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating.

Han neither teaches, discloses, nor suggests "supplying current to the logic unit from the power supply adaptor while charging the battery with current supplied from the power supply adaptor when the logic unit is operating," as discussed above with respect to the rejection of claims 3

and 11. Claim 7 is thus submitted to be allowable as well, for at least those reasons discussed above with respect to the rejection of claims 3 and 11. Withdrawal of the rejection of claim 7 is earnestly solicited.

Claim Rejections - 35 U.S.C. § 103:

Claims 1 and 9 were rejected under 35 U.S.C. § 103 as being unpatentable over Han in view of U.S. Patent No. 6,480,761 to Ueno et al. (hereinafter "Ueno"), and U.S. Patent Application Publication No. 2003/0028993 to Song et al., (hereinafter "Song"). The rejection is traversed. Reconsideration is earnestly solicited.

The final Office Action acknowledges graciously that Han shows no "alarm indicating an insufficient remaining power and instructing the charging/discharging circuit to charge the battery," as recited in claims 1 and 9. The final Office Action seeks to address this deficiency of Han by combining Han with Ueno. Ueno, however, shows no "alarm indicating an insufficient remaining power and instructing the charging/discharging circuit to charge the battery" either, contrary to the assertion in the final Office Action, and thus cannot make up for the deficiencies of Han with respect to claims 1 and 9.

As Ueno, rather, describes at column 4, lines 12-19:

> The battery-driven legged robot may further comprise at least one device of an attitude sensor, an image input device, and a sound input-output device. The power-control unit may block the driving power to the at least one device of the attitude sensor, the image input device, and the sound input-output device when power of the battery decreases below a predetermined value, thereby reducing power consumption.

Since Ueno reduces power consumption by *blocking* driving power to the at least one device of the attitude sensor, the image input device, and the sound input-output device when power of the battery decreases below a predetermined value, Ueno has no use for "an alarm indicating an insufficient remaining power and instructing the charging/discharging circuit to charge the battery," as recited in claims 1 and 9 as well.

The final Office Action also acknowledges graciously that Han shows no "issuing a charge request message to a user," as recited in claims 1 and 9. The final Office Action seeks to address this deficiency of Han by combining Han with Song. Song, however, shows no "issuing a charge request message to a user" either, contrary to the assertion in the final Office Action, and thus cannot make up for the deficiencies of Han with respect to claims 1 and 9.

The charge request signal of Song, rather, goes to controlling portion 18, not the user. Furthermore, the charge request signal of Song will be an electrical signal that will never be heard by a user unless something goes very, very wrong. In particular, as Song describes at paragraph [0053]:

> [0053] A battery charge level detecting portion 20 detects the charge level of the battery 19, and generates a signal for charge request when the detected charge level reaches a predetermined lower limit.

Thus, since Song generates a signal for charge request when the detected charge level reaches a predetermined lower limit, Song has no need for also "issuing a charge request message to a user," as recited in claims 1 and 9. Thus, even if Han, Ueno, and Song were combined as proposed in the final Office Action, the claimed invention would not result.

Finally, the final Office Action provides no motivation or suggestion to combine the teachings of Han, Ueno, and Song as required by 35 U.S.C. § 103(a) and the M.P.E.P. §706.02(j)(D), beyond the assertion in section 5 at page 4 that:

> It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot type of Han with the robot type of Ueno *et al.*, because this modification would have enhanced Han's robot in order to indicate that the battery has decreased below a predetermined value, thereby improving the efficiency and the reliability of the power supply control for mobile robot."

Han, however, describes the function of a robot cleaner at column 1, lines 53-60 to be:

> In the case of the conventional robot cleaner thus described, when a power source of the battery 10 for supplying an operating energy to the cleaner 1 is consumed thereby to cause the same to drop below a predetermined level in the midst of the cleaning operation or during completion stage of the same, the cleaner stops the cleaning operation and starts to move by itself toward the power source supply means 130 disposed on a wall surface.

Since the robot cleaner is intended to monitor its own power source and recharge, when necessary by itself, i.e. without human intervention, as described in Han, it would serve no purpose to also alert people that power was low with an alarm. The robot cleaner of Han, rather, is supposed to be unobtrusive, not alarming. It is submitted, therefore, that persons of ordinary skill in the art who read Han for all it contains would have been deterred from modifying Han as proposed in the final Office Action, since to do so would have negated the feature touted by Han, the ability of robot cleaner 1 to operate by itself.

The final Office Action also asserts in section 5 at page 5 that:

> It would have been obvious to a person of ordinary skill in the art at the time of the invention to modify the robot types of Han and Ueno *et al.*, with the robot type

of Song *et al.*, because this modification would have enhanced Han's and Ueno's *et al.* robot in order to process a series of jobs that allow a menu selected by the user to be carried out by the robot cleaner, thereby improving the efficiency and the reliability of the power supply control for mobile robot.

Here again, since the robot cleaner is intended to operate by itself, i.e. without human intervention, as described above, it would serve no purpose to add menu input to *allow* user intervention. It is submitted, therefore, that persons of ordinary skill in the art who read Han for all it contains would have been deterred from modifying Han as proposed in the final Office Action, since to do so would have negated the feature touted by Han, the ability of robot cleaner 1 to operate by itself. Claims 1 and 9 are submitted to be allowable. Withdrawal of the rejection of claims 1 and 9 is earnestly solicited.

Claim 5:

Claim 5 was rejected under 35 U.S.C. § 103 as being unpatentable over Han in view of Song. The rejection is traversed. Reconsideration is earnestly solicited.

The final Office Action acknowledges graciously that Han shows no "issuing a charge request message to a user," as recited in claim 5. The final Office Action seeks to address this deficiency of Han by combining Han with Song. Song, however, shows no "issuing a charge request message to a user" either, contrary to the assertion in the final Office Action, and thus cannot make up for the deficiencies of Han, as discussed above with respect to the rejection of claims 1 and 9. The charge request signal of Song, rather, goes to controlling portion 18, not the user. Thus, even if Han and Song were combined as proposed in the final Office Action, the claimed invention would not result.

Finally, the final Office Action provides no motivation or suggestion to combine the teachings of Han and Song as required by 35 U.S.C. § 103(a) and the M.P.E.P. §706.02(j)(D), as also discussed above with respect to the rejection of claims 1 and 9. Claim 5 is thus submitted to be allowable as well, for at least those reasons discussed above with respect to the rejection of claims 1 and 9. Withdrawal of the rejection of claim 5 is earnestly solicited.

New Claim 13:

Claim 13 recites:

Detecting whether the program is being executed, and when the program is not being executed, automatically cutting off the power supply to a drive mechanism of the robot from a battery.

None of the cited references teach, disclose, or suggest, "detecting whether the program is being executed, and when the program is not being executed, automatically cutting off the power supply to a drive mechanism of the robot from a battery," as recited in claim 13. Claim 13 is thus believed to be allowable.

Allowable Subject Matter:

The Applicant acknowledges with appreciation the allowance of claims 4, 8, and 12.

Conclusion:

Accordingly, in view of the reasons given above, it is submitted that all of claims 1-13 are allowable over the cited references. The claims are therefore in a condition suitable for allowance. An early Notice of Allowance is requested.

If there are any formal matters remaining after this response, the Examiner is requested to telephone the undersigned to attend to these matters.

If there are any additional fees associated with filing of this Amendment, please charge the same to our Deposit Account No. 19-3935.

Respectfully submitted,

STAAS & HALSEY LLP

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